Hello Bio, Inc.
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500
F. 609-228-4994

customercare-usa@hellobio.com

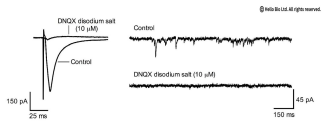
DATASHEET

DNQX disodium salt

Product overview

Name	DNQX disodium salt
Cat No	HB0262
Biological action	Antagonist
Purity	>98%
Customer comments	*DNQX disodium salt is a good product* **Verified customer, Research University Paris**
Description	Selective, competitive AMPA / kainate receptor antagonist. Sodium salt.

Images



Biological Data

Biological description

DNQX disodium salt is a water soluble, selective and competitive AMPA and kainate receptor antagonist. It also acts as partial AMPA agonist in the presence of γ2 transmembrane AMPA receptor regulatory proteins (TARP) subunit.

DNQX is also a neuroleptic agent that displays pro-oxidant activity.

Application notes

DNQX freebase is also available.
DNQX disodium salt antagonizes the actions of glutamate at AMPA receptors. It is commonly used to reduce excitatory post synaptic currents (EPSC) and is commonly used at 10 µM. DNQX disodium salt from Hello Bio completely blocks both spontaneous and evoked EPSCs at 10 µM, with concentrations of 1 µM also effective (see Fig 1 above).

#Protocol 1: Evoked and spontaneous excitatory post synaptic currents (EPSCs)

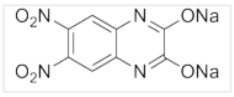
- Whole cell voltage clamp recordings were obtained from layer V neurons of the mouse prelimbic cortex brain slice.
- EPSCs were evoked via a stimulating electrode placed in layers II/III delivering a single square (150 µs) pulse every 10 sec at an intensity that gave a reliable EPSC.
- Neurons were held at -70 to -60 mV (the reversal potential of GABA currents). EPSCs were continuously stimulated and recorded in response to 5 min applications of varying concentrations of DNQX disodium salt until complete receptor inhibition.
- Spontaneous EPSCs were recorded before and after addition of DNQX disodium

salt by holding the neuron at -70 mV and recording for 10 sec.
- Recordings for EPSCs were made in the absence of $GABA_A$-R antagonists.

Solubility & Handling

Storage instructions	Room temperature (desiccate)
Solubility overview	Soluble in water (100mM)
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Chemical name	6,7-Dinitroquinoxaline-2,3-dione disodium salt
Molecular Weight	296.1
Chemical structure	
Molecular Formula	$C_8H_2N_4Na_2O_6$
CAS Number	1312992-24-7
PubChem identifier	45073428
SMILES	C1=C2C(=CC(=C1[N+](=O)[O-])[N+](=O)[O-])N=C(C(=N2)[O-])[O-].[Na+].[Na+]
Source	Synthetic
InChi	InChI=1S/C8H4N4O6.2Na/c13-7-8(14)10-4-2-6(12(17)18)5(11(15)16)1-3(4)9-7;;/h1-2H,(H,9,13)(H,10,14);;/q;2*+1/p-2
InChiKey	GPSBSOYURFUVKJ-UHFFFAOYSA-L
Appearance	Brown solid

References

Redox properties and prooxidant cytotoxicity of a neuroleptic agent 6,7-dinitrodihydroquinoxaline-2,3-dione (DNQX).

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PubMedID 23757451

TARP auxiliary subunits switch AMPA receptor antagonists into partial agonists.

Menuz K *et al* (2007) Science 318(5851)
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Selective excitatory actions of DNQX and CNQX in rat thalamic neurons.

Lee SH *et al* (2010) J Neurophysiol 103(4)
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Pharmacological characterization of glutamatergic agonists and antagonists at recombinant human homomeric and heteromeric kainate receptors in vitro.

Alt et al (2004) Neuropharmacology 46(6)
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